



Coastal BREEZE news

Our Canals Need Care & Conservation

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A web of animals and plants live together in harmony in our canals, as long as we keep them clean.

SUBMITTED PHOTO

PROTECTING & PRESERVING

Nancy Richie

NRichie@cityofmarcoisland.com

Marco Island has 100 miles of man-made canals. Historically, it was an approximate 6,000 acre mangrove island until the Deltona Corporation dredged it and filled it, using vertical, cement paneled seawalls to contain and stabilize the fill. Thus, creating the labyrinth of 100 miles of waterway canals in an approximately four square mile area. This construction created the 8,311 single-family residential properties (excluding

Hideaway Beach and Key Marco) that we call home. Of these 8,311 properties, 5,723 are located on the canals, or waterfront. To date, 4,634 of those properties are developed. Basically, for those waterfront residents, a third of their backyard is water.

It is a great way to live, seeing the water, watching the wildlife, boaters, and tidal changes. To ensure the high quality of life on our island continues, Marco Island has made strides in protecting the quality of the canal waters by removing septic tanks, improving storm water outfalls, insisting on best management practices of contractors who work in and around the canals and promoting and requiring Florida Friendly Landscaping. It's principals that dictate the use of native plants and less chemicals and water. As a community, we all collectively need to do our part to not tip the balance of our canals and the ecosystem that supports the reason why we love to live here. The 100 miles of canals need care and conservation.

It's important to remember, whatever is on the ground will ultimately end up in the canal water. Runoff, referred to as storm water runoff, is rain water that falls and moves along the streets,

driveways, lawns and swales, picking up anything in its pathway – sediments, trash, fertilizer, pesticides and oils – as it moves to the lowest point, typically the storm water drain, which leads to the canal system. Anything from dripping cars or lawn equipment to the overuse of fertilizer and pesticides, oils and detergents, eroding soils, grass clippings – all of it – will travel in the moving water and runoff into the canals. The more rain, the more runoff, and the more the pollution flows into the canals.

Over the past few years, Marco Island has improved the over 1,500 storm water outfalls throughout the island by installing treatment systems referred to as “storm inlet skimmer boxes.” The skimmer boxes have two steps to treat or “clean” storm water runoff before the water flows into the canal system. Within the skimmer box, encircling the grate is a hydrocarbon filter. The boom-like filter catches larger debris, grass clippings, leaves, twigs, and trash of all types as well as absorbing fertilizer, pesticide and organic particles. When a small rain shower or slow moving storm occurs, the storm water runoff has low to medium in flow; the water has to travel through the boom-like filter before entering the drain. If a deluge occurs, the storm water flow is high, the water will travel through and cascade over the boom prior to entering the drain. Once in the drain, the second step to treating or “cleaning” the runoff water is the graduated sieve. This is a series of screens that progressively filter the water through smaller grates or filters, collecting nutrients and silt that still remains in the runoff water. Water may sit in the graduated sieve system until the storm water flow is high enough to move the water through the progressive screening system, then to the out fall and to the canal waters. Cleaning and treating this runoff is important. If too much pollution tips the balance of the delicate canal ecosystems, our backyards will be affected and stop providing a high quality of aquatic life we expect to see on Marco Island.

This storm water system helps to keep man made material from entering the canals. What is living in the canals that keeps the natural ecosystem balanced? Of course, the sun is the energy source, which there is plenty of, and best of all, it's free. But plants, insects, invertebrates, fish, birds and mammals create an intricate food web that keeps the canals healthy. In the Marco Island canals, several types of algae, both green and brown, are easily seen growing on anything submerged in the water that receives sunlight. These are the base of the canal food web. Occasionally, especially in the summer months, free-floating red, green or brown algae accumulate and drift throughout the canals. This plant life is consumed by small organisms, sometimes too small to be seen, as they absorb nutrients and help to filter the pollutants carried into the canal from runoff. Green algae that grows on the canal bottom often gets stirred up by storms, tides and boats and can float on the surface as a “mat.” Small insects, crab and fish will feed and use the algae as shelter. There are also diverse types of microalgae species in the water column. When too much pollution, such as nitrogen and phosphate from fertilizers enter the canals, it can overwhelm the food web, causing eutrophication and an algae bloom result. This, in turn, causes low dissolved oxygen and an unbalanced nitrogen cycle. Not

only is the canal surface unsightly, discolored and often odorous, but it can also cause invertebrate and fish die-offs. If it is a toxic micro algae, it could affect human and marine mammals too, as in the case of a "red tide" bloom of the species *Karenia breve*.

At low tide, on the seawalls, dock piles and ladders, oysters, barnacles and other mollusks can be seen attached to these surfaces. Thorny starfish and sea slugs are seen sporadically among the mollusks. These animals are filter feeders, taking particles out of the water column for food. Doing this also helps water clarity and quality. Swimming under the docks and near the shell-encrusted seawalls are fish that nibble on smaller prey such as pinfish, needlefish, mangrove snapper, sheepshead, and grouper. Mullet can be seen leaping in large schools on any given day, as well as jack fish and hardhead catfish. Snook are also very common along the sea walls. Shining a light at night over the water attracts shrimp, comb jellies, and sea hares which then attract snook for easy catching.

Many types of crabs depend on this watery habitat also. Free swimming and beautiful, blue crabs can be seen on the surface, swimming or riding the tide. They may attract a gobbling tarpon to feast on them for breakfast. Spider, arrow and gray marsh crabs are much smaller and do not swim, but are in great numbers on the seawalls and piles at lower tides. If rip rap, or rock that is placed along the base of a seawall for erosion control, is present, even stone crab may be hiding down there.

Southern stingrays and spotted eagle rays are also seen gliding through the waterways. Feeding pods of dolphin that herd mullet to the dead ends of the canal to catch are spectacular to watch. And fortunately, many manatees live in the Marco Island canals year round, giving birth to the next generation in the quieter canals. An occasional alligator is seen, so beware!

All of this beauty is happening just feet away from most of our backdoors. Why would anyone want to jeopardize their own backyard?

To do your part in the care and conservation the Marco Island waterway canals, please:

- Always ensure best management practices are in place when seawall, dock, riprap, or dredging is being conducted on your property
- Incorporate Florida Friendly Landscaping in your yard to use less chemicals and water
- Do not fertilize in the rainy season (May through September)
- When using fertilizer or pesticide follow the label and don't over use
- Never dump vegetation debris or waste into the canal waterways
- Always pick up pet waste and dispose in waste management trash receptacles

- Maintain vehicles and other equipment with motors to avoid fluid leaks
- Maintain boat motors and prevent oil and gas leaks in and over canals
- Never pump out in surface waters; use local, free, pump out stations for boat bathrooms
- If you see floating trash, help out and remove it then dispose of it properly
- Use less plastic; bring reusable bags to shop at the grocery store

For more information on the Marco Island waterway canals, visit www.cityofmarcoisland.com or contact Nancy Richie at 239-389-5003 or nrichie@cityofmarcoisland.com.

For more information on local locations to see wildlife, or interest in volunteering, please contact Nancy Richie, Environmental Specialist, City of Marco Island, at 239-389-5003 or nrichie@cityofmarcoisland.com